

EXHIBIT A

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EXPERIENCE

- 1969 - 1970 Graduate Teaching Assistant in Microbiology, University of Connecticut, Storrs, CT, USA
1970 - 1971 Graduate Teaching Assistant in Genetics, University of Connecticut, Storrs, CT, USA
1971 - 1973 Military Service: Space Surveillance Officer, Ent Air Force Base, Colorado Springs, CO.,
Honorable Discharge
1975 - 1975 Instructor in Genetics (summer session), University of Connecticut, Storrs, CT, USA
1977 - 1978 Teaching Assistant in Molecular Biology and Microbiology, Brown University, Providence,
RI, USA
1976 - 1979 Postdoctoral Research Fellow under Dr. Arthur Landy, Div. of Biology and Medicine,
Brown University, Providence, RI, USA
1980 - 1984 Assistant Research Scientist, Department of Molecular Genetics, City of Hope Research
Institute, Duarte, CA, USA
1985 - 1991 Teaching - UCLA Graduate Dept. of Microbiology, Los Angeles, CA, USA
1984 - 1989 Associate Research Scientist, Department of Molecular Genetics, Beckman Research
Institute of City of Hope, Duarte, CA, USA
1988 - 1992 Associate Chairman, Division of Biology, Beckman Research Institute of City of Hope,
Duarte, CA, USA
1988 - 1994 Adjunct Research Professor of Microbiology, Loma Linda School of Medicine, Loma Linda,
CA, USA
1990 - 7/94 Research Scientist, Department of Molecular Genetics, Beckman Research Institute of
City of Hope, Duarte, CA, USA
1990 - 7/94 Director, Department of Molecular Genetics, Beckman Research Institute of City of Hope,
Duarte, CA, USA
1992 - 7/94 Chairman, Division of Biology, Beckman Research Institute of City of Hope, Duarte, CA, USA
8/94 - 3/96 Associate Director, Center for Molecular Biology and Gene Therapy, Loma Linda University,
Loma Linda, CA, USA
10/94-Present Adjunct Professor, Division of Biology and Department of Hematology, BMT, City of Hope
National Medical Center, Duarte, CA, USA
3/96 - 7/96 Director, Center for Molecular Biology and Gene Therapy, Loma Linda University, Loma
Linda, CA, USA
8/96-Present Adjunct Professor, Department of Basic Sciences, Loma Linda University, Loma Linda, CA,
USA
8/96 - 8/01 Director, Department of Molecular Biology, Section Head, Gene Regulation, Beckman
Research Institute of City of Hope, Duarte, CA, USA
1/98-Present Dean, Graduate School of Biological Sciences, City of Hope National Medical Center and
Beckman Research Institute of City of Hope, Duarte, CA., USA
2001-Present Associate Director for Basic Research, City of Hope Comprehensive Cancer Center, City of
Hope National Medical Center, Duarte CA., USA
2001-Present Associate Chair, Shared Resources Advisory Committee, City of Hope Comprehensive
Cancer Center, City of Hope National Medical Center, Duarte CA., USA
2001-Present Co-Program Director, Cancer Biology Program, City of Hope Comprehensive Cancer
Center, City of Hope National Medical Center, Duarte CA., USA
2001-Present Adjunct Prof., Div. of Biomedical Sciences, Univ. of California, Riverside, Riverside, CA

1996-Present Chair and Professor, Department of Molecular Biology, Beckman Research Institute of the
City of Hope, Duarte, CA
2008-Present Lidow Family Endowed Research Chair

EDUCATION

1969 B.A., Biology, University of New Hampshire, Durham NH, USA
1971 M.S., Microbial Genetics, University of Connecticut, Storrs, CT, USA (Dr. Claire Berg)
1976 Ph.D., Microbial Genetics, University of Connecticut, Storrs, CT, USA (Dr. Claire Berg)
1976 - 1979 Postdoctoral Fellow, Brown University, Providence, RI, USA (Dr. Arthur Landy)

HONORS AND AWARDS

Phi Beta Kappa, Phi Sigma, Phi Kappa Phi and Sigma Xi Honor Societies
U.S. Air Force Financial Assistance Grant
University of Connecticut State Scholarship
University of Connecticut Demi-Fellowship
University of Connecticut Summer Scholarship
NDEA Graduate Fellowship
National Science Foundation Predoctoral Fellowship
U. S. P. H. S. Postdoctoral Fellowship
Walter MacPherson Society Research Award, Loma Linda Univ. School of Medicine, 1990
American Association for Clinical Chemistry Outstanding Speaker Award, 1991
Gallery of Scientific and Medical Achievement, City of Hope National Medical Center, 1993
Merit Award, Division of AIDS, National Institute of Allergy and Infectious Diseases, 2002
Cozzarelli Award, National Academy of Sciences 2008

PROFESSIONAL MEMBERSHIPS

American Association for the Advancement of Science
American Society for Microbiology
American Society for Biochemistry and Molecular Biology
Genetics Society of America
American Society for Gene Therapy
RNA Society
Oligonucleotide Therapeutics Society, Inc.-President

CURRENT EDITORIAL BOARDS

2006- Present Oligonucleotides, Co-Editor in Chief
1997 - Present Frontiers in Bioscience, Editor
1998 - Present Gene Therapy and Molecular Biology
1999 - Present Molecular Therapy, Associate Editor
2002 - Present Cancer Gene Therapy, Editorial Board
2005 - Present Biotechnology Journal, Editorial Board
2005 - Present Journal of Biological Chemistry, Editorial Board
2005 - Present BioTechniques, Editorial Board
2006 - Present Recent Patents in Biotechnology, Editorial Board
2007 - Present Open Biotechnology, Editorial Board
2007 - Present Open Genetics, Editorial Board
2008 - Present Gene Therapy
2008 - Present Silence, Editorial Board

SCIENTIFIC CONSULTANT AND ADVISORY BOARDS

2000 - 2005 Scientific Consultant, Immusol Inc.

2003 - 2005	Scientific Advisory Board, International Therapeutics, Inc
2001 - 2006	Scientific Consultant, VIRxSYS
2003 - 2008	Board of Directors, CytoGenix, Inc.
2003 - 2005	Chairman, Scientific Advisory Board, Benitec Inc., Australia Ltd.
2007 - Present	Scientific Advisory Board, Benitec, Inc. Australia Ltd.
2004 - Present	Member, External Advisory Committee, Center of Biomedical Research Excellence (COBRE), Roger Williams Hospital, Providence, R.I.
2005 - Present	Advisory Board, American Society of Gene Therapy
2005 - Present	Advisory Board Genome Canada funded program at Sherbrooke University, Quebec
2006 - Present	Scientific Advisory Board, NanoViricides Inc.
2005 - 2007	Co-Founder, Calando Pharmaceuticals, Inc.
2007	Co-Founder and Scientific Advisory Board Chairman, Dicerna Pharmaceuticals Inc.

AD HOC GRANT REVIEWER

1992 - 1994	Beckman Foundation
1992	University of North Carolina, Biotechnology Program
1991 - 1994	NSF
1991 - 1997	Veteran's Administration
1988 - 1994	City of Hope Cancer Center Advisory Panel
1993	NIH National Cooperative Drug Discovery Group Program
1994	NIAID Special Antiviral Study Section
1994 - 1995	Medical Research Council of the United Kingdom
1996 - Present	Leukemia Foundation, United Kingdom
1996	AIDS and Related Research Study Section, NIAID, National Institutes of Health

GRANT REVIEW PANELS AND TASK FORCE MEMBERSHIPS

1993 - 1996	National Science Foundation - Biochemistry and Genetics
1991 - 1996	American Cancer Society - Postdoctoral Fellowship Committee
1997 - 2001	AIDS and Related Research Study Section, NIAID, National Institutes of Health
1999 - 2001	Chairman, AIDS and Related Research Study Section, NIAID, National Institutes of Health
2004 - Present	Chairman, Small Business Innovative Research Study Section, NIAID, National Institutes of Health
2000 - 2006	University wide Task Force on AIDS - University of California
2004 - 2006	Chairman University of California Wide Task Force on AIDS
2008 - Present	AIDS Discovery and Development of Therapeutics Study Section, National Institute of Health

PATENTS

Patent Number 4,874,853	Synthetic Oligonucleotides Useful in Diagnosis of Chronic Myelogenous Leukemia
Patent Number 5,110,802	Oligonucleotide Phosphonates and Method of Inhibiting a Human Immunodeficiency Virus <i>In Vitro</i> Utilizing said Oligonucleotide Phosphonates
Patent Number 5,272,262	Method for the Production of Catalytic RNA in Bacteria
Patent Number 5,750,380	DNA Polymerase Medicated Synthesis of Double Stranded Nucleic Acids
Patent Number 5,827,935	Chimeric tRNA ^{LYS} -Ribozyme Molecules
Patent Number 5,869,249	Method for Amplification and Detection of RNA and DNA Sequences
Patent Number 5,985,661	Anti-HIV Ribozymes
Patent Number 5,695,938	Anti-HIV Ribozymes
Patent Number 8,522,356	Inhibitors and Target Molecule Co-Localization

Patent Number 6,100,087	Ribozymes Targeted to Human CCR5 mRNA
Patent Number 5,144,019	Ribozyme Cleavage of HIV-1 RNA
Patent Number 6,069,007	Ribozyme Cleavage of HIV RNA
Patent Number 5,149,796	Chimeric DNA-RNA Catalytic Sequences
Patent Number 6,096,715	Chimeric DNA-RNA Catalytic Sequences
Patent Number 6,379,931	Chimeric DNA/RNA Ribozymes Containing Propanediol
Patent Number: 6,562,570 B1	Method for Identifying Accessible Binding Sites on RNA
Patent Number: 10,365,643	Methods for Producing Interfering RNA Molecules in Mammalian Cells and Therapeutic Uses for Such Molecules
Patent Number: 5,783,391	Method for Amplification and Detection of RNA and DNA Sequences
Patent Number: 5,622,820	Method for Amplification and Detection of RNA and DNA Sequences
Patent Number: 699, 5258 B1	Nucleolar Targeting of Therapeutics Against HIV

Mentored Ph.D. graduates

James Deshler, Microbiology, University of California, Los Angeles, CA, USA
Garrett Larson, Microbiology, University of California, Los Angeles, CA, USA
Pairoj Chang, Biochemistry, Loma Linda University, Loma Linda, CA, USA
Nerida Taylor, Physiology, Loma Linda University, Loma Linda, CA, USA
David Elkins, Microbiology and Molecular Genetics, Loma Linda University, Loma Linda, CA, USA
Juan Lin, Microbiology and Molecular Genetics, Loma Linda University, Loma Linda, CA, USA
John Francis, Microbiology and Molecular Genetics, Loma Linda University, Loma Linda, CA, USA
Zongli Chang, Microbiology and Molecular Genetics, Loma Linda University, Loma Linda, CA, USA
Yuksel Yildiz, Microbiology and Molecular Genetics, Loma Linda University, Loma Linda, CA, USA
Ali Eshani, Molecular Biology, Beckman Research Institute of the City of Hope, CA, USA
Shou Gu, Molecular Biology, Beckman Research Institute of the City of Hope, CA, USA
Bret Heale, Molecular Biology, Beckman Research Institute of the City of Hope, CA, USA

PUBLICATIONS

- Rossi, J.J. and Berg, C.M. (1971) Differential recovery of auxotrophs after penicillin enrichment in *Escherichia coli*. *J. Bacteriol.* **106**: 297-300.
- Berg, C.M. and Rossi, J.J. (1974) Proline excretion and indirect suppression in *Escherichia coli* and *Salmonella typhimurium*. *J. Bacteriol.* **118**: 928.
- Berg, C.M., Rossi, J.J., Coleman, J.V. and Conlon, M. (1975) Procedure for isolating mutants defective in metabolite transport or utilization. *J. Bacteriol.* **121**: 1216-1218.
- Rossi, J.J. and Berg, C.M. (1975) The effect of enrichment procedure upon auxotroph recovery in *Escherichia coli* K-12. *Antimicrob. Agents and Chemotherapy* **7**: 110-112.
- Anderson, S., Berg, C.M. and Rossi, J.J. (1975) An inexpensive membrane filtration manifold. *Analytical Biochem.* **69**: 655-665.
- Rossi, J.J., Vender, J., Berg, C.M. and Coleman, W.H. (1977) Partial purification and some properties of Δ -1-pyrroline-5-carboxylate reductase from *Escherichia coli*. *J. Bacteriol.* **129**: 108-114.
- Rossi, J.J., Vender, J. and Berg, C.M. (1977) Proline excretion in *Escherichia coli*: A comparison of an argD^+ strain and a proline-excreting argD^- derivative. *Biochem. Genetics* **15**: 287-296.
- Rossi, J.J., Ross, W., Egan, J., Lipman, D.J. and Landy, A. (1979) Structural organization of *Escherichia coli* tRNA^{Tyr} gene clusters in four different transducing bacteriophages. *J. Mol. Biol.* **128**: 21-47.

- Rossi, J.J. and Landy, A. (1979) Structure and organization of the two tRNA^{Tyr} gene clusters on the *Escherichia coli* chromosome. *Cell* **16**: 523-534.
- Rossi, J.J., Egan, J., Hudson, L. and Landy, A. (1981) The tyrT locus: Termination and processing of a complex transcript. *Cell* **26**: 305-314.
- Hudson, L., Rossi, J.J. and Landy, A. (1981) Dual function transcripts specifying tRNA and mRNA. *Nature* **294**: 422-427.
- Rossi, J.J., Kierzek, R., Huang, T., Walker, P.A. and Itakura, K. (1982) An alternate method for assembling and cloning synthetic genes. *J. Biol. Chem.* **257**: 9226-9229.
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- Reilly, J.C., Ogden, R. and Rossi, J.J. (1982) Isolation of a mouse pseudo tRNA gene that encodes CCA: A possible example of reverse flow of genetic information. *Nature* **300**: 287-289.
- Larson, G.P., Itakura, K., Ito, H. and Rossi, J.J. (1983) *Saccharomyces cerevisiae* actin - *Escherichia coli* lacZ gene fusions: synthetic-oligonucleotide-mediated deletion of the 309 b.p. intervening sequence in the actin gene. *Gene* **22**: 31-39.
- Rossi, J.J., Soberon, X., Marumoto, Y., McMahon, J. and Itakura, K. (1983) Biological expression of an *Escherichia coli* consensus sequence promoter and some mutant derivatives. *Proc. Natl. Acad. Sci. USA* **80**: 3203-3207.
- Itakura, K., Rossi, J.J. and Wallace, R.B. (1984) Synthesis and use of synthetic oligonucleotides. *Ann. Rev. Biochem.* **53**: 323-356.
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- Deshler, J. and Rossi, J.J. (1991) Unexpected point mutations activate cryptic 3' splice sites by perturbing a natural secondary structure within a yeast intron. *Genes and Develop.* **5**: 1252-1263.
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- Taylor, N. and Rossi, J.J. (1991) Ribozyme mediated cleavage of HIV-1 GAG RNA: The effects of non-targeted sequences and secondary structure on ribozyme cleavage activity. *Antisense Res. and Development* 1: 173-186.
- Larson, G.P. and Rossi, J.J. (1991) Altered response to growth rate changes in *Kluyveromyces lactis* versus *Saccharomyces cerevisiae* as demonstrated by heterologous expression of ribosomal protein 59 (CRY1) *Nucleic Acids Res.* 19: 4701-4707.
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- Rossi, J.J., Elkins, D., Zaia, J.A. and Sullivan, S. (1992) Ribozymes as anti-HIV-1 therapeutic agents: Principles, applications and problems. *AIDS Research and Human Retroviruses* 8: 183-189.
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- Taylor, N.R., Kaplan, B.E., Swiderski, P., Li, H. and Rossi, J.J. (1992) Chimeric DNA-RNA hammerhead ribozymes have enhanced *in vitro* catalytic efficiency and increased stability *in vivo*. *Nucleic Acids Res.* 20: 4559-4565.
- Castanotto, D. and Rossi, J.J. (1992) Small sequence insertions within the branch point region dictate alternative sites of lariat formation in a yeast intron. *Nucleic Acids Res.* 20: 6649-6655.
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Sarver, N. and Rossi, J.J. (1993) Gene therapies for HIV infection: Progress and prospects. *The NIH Journal* 5(9): 63-67.

Dropulic, B., Elkins, D.A., Rossi, J.J. and Sarver, N. (1993) Ribozymes: Use as anti-HIV therapeutic molecules. *Meeting Report Antisense Res. Develop.* 3: 87-94.

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Rossi, J.J. (1994) Making ribozymes work in cells. *Current Biology* 4: 469-471.

Gu, J.-L., Natarajan, R., Ben-Ezra, J., Valente, G., Scott, S., Yoshimoto, T., Yamamoto, S., Rossi, J.J. and Nadler, J.L. (1994) Evidence that a leukocyte type of 12-Lipoxygenase is expressed and regulated by angiotensin II in human adrenal glomerulosa cells. *Endocrinology* 134: 70-77.

Deshler, J.O., Li, H., Rossi, J.J. and Castanotto, D. (1995) Ribozymes expressed within the loop of a natural antisense RNA form rho-independent transcriptional terminators. *Gene* 155: 35-43.

Gu, J.-L., Veerapanane, D., Rossi, J.J., Natarajan, R., Thomas, L. and Nadler, J. (1995) Ribozyme-Mediated Inhibition of Expression of Leukocyte-type 12-Lipoxygenase in Porcine Aortic Vascular Smooth Muscle Cells. *Circulation Res.* 77: 14-20.

Heidenreich, O., Kang, S., Brown, D., Xu, X., Swiderski, P., Rossi, J.J., Eckstein, F. and Nerenberg, M. (1995) Ribozyme-mediated RNA degradation in nuclei suspension. *Nucleic Acids Res.* 23(12): 2223-2228.

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Westaway, S.K., Larson, G.P., Li, S., Zaia, J.A. and Rossi, J.J. (1995) A Chimeric tRNA^{lys3}-Ribozyme Inhibits HIV Replication Following Virion Assembly Nucleic Acids Research, Symposium, RNA Biology: RNA Protein Interactions. 33: 194-199.

Castanotto, D., Bertrand, E. and Rossi, J.J. (1995) Antisense Technology and Ribozymes. *Molecular Biology, Current Innovations and Future Trends Part 2*: 103-114.

Akhtar, S. and Rossi, J.J. (1996) Anti-HIV therapy with antisense oligonucleotides and ribozymes: realistic

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Zhou, C., Bahner, I., Rossi, J.J. and Kohn D.B. (1996) Expression of Hammerhead Ribozymes by Retroviral Vectors to inhibit HIV-1 Replication: Comparison of RNA Levels and Viral Inhibition. *Antisense Research & Development* **6**: 17-24

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Good, P.D., Krikos, A.J., Li, S.X., Bertrand, E., Lee, N.-S., Giver, L. Ellington, A., Zaia, J.A. Rossi, J.J. and Engelke, D.R. (1997) Expression of small, therapeutic RNAs in human cell nuclei. *Gene Therapy* **4**: 45-54.

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